Ambient Air Monitoring Report

Chat Pile Reclamation Area
Leadwood, Missouri

The Doe Run Company

First Quarter 2013

BARR

1001 Diamond Ridge Suite 1100
Jefferson City, MO 65109
Phone: (573) 638-5000
Fax: (573) 638-5001

Ambient Air Monitoring Report

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July 22, 2013

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – Leadwood Site

Dear Mr. Nations:

Please find attached the First Quarter 2013 "*Ambient Air Monitoring Report*" for The Doe Run Company at the Chat Pile Reclamation Area Sites, located near Leadwood, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **National Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **Quarterly Missing Data Summary** – Listing of missing particulate run days.
- **Quarterly Data Summary** – Includes the averages of each monitored parameter, which relates to the federal standard.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,

Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Mr. Bob Hinkson
Mr. Jason Gunter
Mr. Ty Morris

GLOSSARY OF TERMS

$\mu g/m^3$	Micrograms per Cubic Meter
TSP	Total Suspended Particulate
PM_{10}	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM_{10} – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu g/m^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu g/m^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.
*This standard must be exceeded more than once a year to constitute a violation.

QUARTERLY MISSING DATA SUMMARY

TSP/Lead Summary

All Sites – 1/1/2013 – Holiday – No samples scheduled
Big River #4 QA – 1/24/2013 – INVALID – Mechanical Failure
Leadwood Site #3 – 1/30/2013 – INVALID – Mechanical Failure
All Sites – 2/22/2013 – Inclement Weather – No samples taken
All Sites – 3/7/2013 – Training – No samples scheduled

PM_{10} Summary

All Sites – 1/1/2013 – Holiday – No samples scheduled
All Sites – 2/24/2013 – Inclement Weather – No samples taken

Particulate and Lead Quarterly Summary

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TSP and Lead Concentration Summary

Chat Pile Reclamation Area
Leadwood, Missouri

2013

Date	TSP Big River #4 (µg/m³)	TSP South #1 (µg/m³)	TSP East #2 (µg/m³)	TSP North #3 (µg/m³)	LEAD Big River #4 (µg/m³)	LEAD South #1 (µg/m³)	LEAD East #2 (µg/m³)	LEAD North #3 (µg/m³)
1/2/13	15	13	12	14	0.055	0.012	0.008	0.011
1/3/13	20	16	16	18	0.018	0.011	0.000	0.000
1/4/13	16	15	12	14	0.013	0.009	0.007	0.007
1/7/13	26	19	19	17	0.030	0.008	0.000	0.000
1/8/13	9	11	12	10	0.000	0.006	0.006	0.000
1/9/13	19	18	20	16	0.020	0.020	0.018	0.007
1/10/13	3	3	2	3	0.000	0.000	0.000	0.000
1/11/13	6	6	5	5	0.000	0.000	0.000	0.000
1/14/13	47	24	23	18	0.044	0.022	0.010	0.000
1/15/13	47	26	23	20	0.056	0.021	0.008	0.005
1/16/13	19	19	13	15	0.020	0.006	0.000	0.000
1/17/13	26	13	11	12	0.042	0.012	0.000	0.000
1/18/13	10	9	8	9	0.007	0.006	0.000	0.000
1/21/13	41	13	10	10	0.061	0.008	0.000	0.000
1/22/13	33	22	26	22	0.015	0.018	0.013	0.009
1/23/13	33	28	26	26	0.019	0.019	0.013	0.000
1/24/13	43	25	26	24	0.025	0.000	0.000	0.000
1/25/13	43	31	26	31	0.018	0.008	0.000	0.000
1/28/13	12	12	11	11	0.000	0.000	0.000	0.000
1/29/13	8	6	5	5	0.000	0.000	0.000	0.000
1/30/13	7	6	5	INVALID	0.000	0.000	0.000	INVALID
1/31/13	14	12	10	11	0.007	0.000	0.000	0.000
Monthly Average	23	16	15	15	0.020	0.008	0.004	0.002

QUARTERLY LEAD NAAQS LIMIT: 1.5 µg/m³

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

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TSP and Lead Concentration Summary

Chat Pile Reclamation Area

Leadwood, Missouri

2013

Date	TSP Big River #4 ($\mu g/m^3$)	TSP South #1 ($\mu g/m^3$)	TSP East #2 ($\mu g/m^3$)	TSP North #3 ($\mu g/m^3$)	LEAD Big River #4 ($\mu g/m^3$)	LEAD South #1 ($\mu g/m^3$)	LEAD East #2 ($\mu g/m^3$)	LEAD North #3 ($\mu g/m^3$)
2/1/13	7	10	7	8	0.008	0.000	0.000	0.000
2/4/13	19	13	12	12	0.046	0.013	0.010	0.000
2/5/13	15	13	13	11	0.017	0.043	0.060	0.059
2/6/13	19	11	16	12	0.000	0.000	0.009	0.000
2/7/13	12	10	10	10	0.000	0.000	0.000	0.000
2/8/13	9	10	9	8	0.000	0.006	0.000	0.000
2/11/13	10	4	4	7	0.009	0.000	0.000	0.000
2/12/13	16	13	12	10	0.011	0.007	0.000	0.000
2/13/13	8	9	7	9	0.016	0.027	0.025	0.025
2/14/13	20	10	8	9	0.035	0.000	0.000	0.000
2/15/13	35	10	8	8	0.050	0.000	0.000	0.000
2/18/13	12	9	8	8	0.012	0.000	0.000	0.000
2/19/13	23	10	8	8	0.025	0.000	0.000	0.000
2/20/13	28	18	17	17	0.014	0.012	0.006	0.000
2/21/13	10	10	8	9	0.009	0.011	0.008	0.009
2/25/13	14	15	13	10	0.006	0.023	0.000	0.000
2/26/13	4	5	4	5	0.000	0.000	0.000	0.000
2/27/13	10	9	8	9	0.000	0.000	0.000	0.000
2/28/13	7	10	5	8	0.000	0.012	0.000	0.000
Monthly Average	15	11	9	9	0.014	0.008	0.006	0.005

QUARTERLY LEAD NAAQS LIMIT: 1.5 $\mu g/m^3$

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

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TSP and Lead Concentration Summary

Chat Pile Reclamation Area
Leadwood, Missouri

2013

Date	TSP Big River #4 (µg/m³)	TSP South #1 (µg/m³)	TSP East #2 (µg/m³)	TSP North #3 (µg/m³)	LEAD Big River #4 (µg/m³)	LEAD South #1 (µg/m³)	LEAD East #2 (µg/m³)	LEAD North #3 (µg/m³)
3/1/13	3	4	3	3	0.000	0.000	0.000	0.000
3/4/13	34	22	32	19	0.010	0.000	0.009	0.000
3/5/13	18	15	13	14	0.017	0.007	0.000	0.000
3/6/13	20	8	10	8	0.025	0.023	0.015	0.007
3/8/13	19	13	44	14	0.011	0.000	0.023	0.000
3/11/13	5	6	4	5	0.000	0.000	0.000	0.000
3/12/13	9	9	7	9	0.008	0.006	0.000	0.000
3/13/13	16	12	10	9	0.031	0.010	0.000	0.000
3/14/13	20	20	21	19	0.009	0.007	0.006	0.000
3/15/13	185	118	97	187	0.011	0.016	0.009	0.009
3/18/13	10	9	7	9	0.000	0.006	0.000	0.000
3/19/13	9	9	5	8	0.010	0.009	0.000	0.000
3/20/13	21	16	12	15	0.027	0.013	0.000	0.000
3/21/13	23	14	17	13	0.013	0.009	0.013	0.000
3/22/13	22	16	20	18	0.012	0.007	0.012	0.006
3/25/13	3	5	3	4	0.000	0.000	0.000	0.000
3/26/13	10	9	8	10	0.019	0.022	0.006	0.011
3/27/13	24	18	28	20	0.037	0.025	0.021	0.009
3/28/13	28	24	38	22	0.009	0.007	0.018	0.000
3/29/13	23	20	31	21	0.009	0.009	0.018	0.006
Monthly Average	25	18	21	21	0.013	0.009	0.007	0.002

Quarterly Average	21	15	15	15	0.016	0.008	0.006	0.003
					QUARTERLY LEAD NAAQS LIMIT: 1.5 µg/m³			

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

PM_{10} Quarterly Summary

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Particulate Summary

Chat Pile Reclamation Area
Leadwood, Missouri

2013

Date	PM_{10} Big River #4 ($\mu g/m^3$)	PM_{10} South #1 ($\mu g/m^3$)	PM_{10} East #2 ($\mu g/m^3$)	PM_{10} North #3 ($\mu g/m^3$)	PM_{10} NAAQS ($\mu g/m^3$)
4-Jan	14	7	14	14	150
7-Jan	12	8	9	8	150
10-Jan	5	5	5	5	150
13-Jan	8	8	9	7	150
16-Jan	12	10	9	8	150
19-Jan	7	8	7	6	150
22-Jan	22	8	12	8	150
25-Jan	26	22	23	20	150
28-Jan	11	10	11	9	150
31-Jan	8	7	8	5	150
Monthly Average	12	9	11	9	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

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Particulate Summary

Chat Pile Reclamation Area
Leadwood, Missouri

2013

Date	PM_{10} Big River #4 ($\mu g/m^3$)	PM_{10} South #1 ($\mu g/m^3$)	PM_{10} East #2 ($\mu g/m^3$)	PM_{10} North #3 ($\mu g/m^3$)	PM_{10} NAAQS ($\mu g/m^3$)
3-Feb	6	3	4	3	150
6-Feb	13	6	11	7	150
9-Feb	10	8	7	9	150
12-Feb	12	8	10	9	150
15-Feb	8	4	5	4	150
18-Feb	7	4	7	4	150
21-Feb	10	8	10	9	150
27-Feb	10	10	11	10	150
Monthly Average	9	6	8	7	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

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Particulate Summary

Chat Pile Reclamation Area
Leadwood, Missouri

2013

Date	PM_{10} Big River #4 ($\mu g/m^3$)	PM_{10} South #1 ($\mu g/m^3$)	PM_{10} East #2 ($\mu g/m^3$)	PM_{10} North #3 ($\mu g/m^3$)	PM_{10} NAAQS ($\mu g/m^3$)
2-Mar	6	5	8	5	150
5-Mar	11	10	11	9	150
8-Mar	14	9	20	10	150
11-Mar	6	7	6	6	150
14-Mar	13	8	11	9	150
17-Mar	3	3	3	4	150
20-Mar	8	7	6	8	150
23-Mar	15	15	17	13	150
26-Mar	4	3	5	5	150
29-Mar	19	14	16	14	150
Monthly Average	10	8	10	8	
Quarterly Average	11	8	10	8	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Quarterly Quality Control

INOVATIA® LABORATORIES, LLC

120 East Davis Street
P.O. Box 30
Fayette, MO 65248-0030

Phone: (660) 248-1911
Fax: (660) 248-1921
http://www.inovatia.com

ANALYSIS REPORT

Client Information:
Barr Engineering
5150 W. 76th Street
Edina, MN 55439

Project Name: Quarterly QC Samples
Quarter-Year: Q1-2013
Sample Matrix: Filter

Analysis Method: 40 CFR §58 Appendix A/40 CFR §50 Appendix G

Lab Number	Observed Value (µg Pb/Filter)	Actual Value (µg Pb/Filter)	Difference (+/-)	Difference (%)	% Difference Average (%)	Standard Deviation	95% Probability Limit (+)	95% Probability Limit (-)	Analyst-Date
20A	19.417	20	-0.583	-2.915%					DS-01/24/13
20B	19.260	20	-0.740	-3.700%					DS-02/28/13
20C	20.456	20	0.456	2.280%	-1.445%	3.250%	4.924%	-7.814%	DS-03/28/13
60A	60.786	60	0.786	1.310%					DS-01/24/13
60B	59.607	60	-0.393	-0.655%					DS-02/28/13
60C	62.318	60	2.318	3.863%	1.506%	2.266%	5.947%	-2.934%	DS-03/28/13

Submitted by: Jennifer Vandelicht

Digitally signed by Jennifer Vandelicht
DN: cn=Jennifer Vandelicht, o=Inovatia Laboratories, LLC, ou=Quality Assurance, email=jvandelicht@inovaita.com, c=US
Date: 2013.04.02 15:36:26 -05'00'

Jennifer Vandelicht
Quality Assurance

04/02/2013
Date